

REMARKS

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, the claims have been amended such that they are in proper U.S. format.

Applicants have examined claim 17 which includes the limitation "the second predetermined wavefront modification is at least approximately flat". The term "second predetermined wavefront modification" finds support in claim 15, line 13. Applicants stress that claim 17 does not recite the limitation "second predetermined wavefront modifier" as indicated by the Examiner.

Applicants believe that the above explanation answers the Examiner's 35 U.S.C. 112, paragraph 2, rejection of claim 17, and respectfully request withdrawal thereof.

The Examiner has provisionally rejected claim 1 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 2 of co-pending U.S. Patent Application Serial No. 10/564,535 (now U.S. Patent 7,310,189). The Examiner has further provisionally rejected claims 1-3 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 6 and 7 of co-pending U.S. Patent Application Serial No. 10/599,371. Finally, the Examiner has provisionally rejected claims 1 and 5 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 3 of co-pending U.S. Patent Application Serial No. 10/596,761.

In response thereto, enclosed herewith are separate Terminal Disclaimers each respectively referencing said U.S. patent and patent applications.

The Examiner has rejected claims 1, 6-8, 10, 11, 15 and 17 under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,473,543 to Bartels. The Examiner has further rejected claims 4, 13 and 14 under 35 U.S.C. 103(a) as being unpatentable over Bartels in view of U.S. Patent 5,091,801 to Ebstein. In addition, the Examiner has rejected claim 9 under 35 U.S.C. 103(a) as being unpatentable over Bartels in view of U.S. Patent 3,641,354 to De Ment. Applicants acknowledge that the Examiner has found claims 12, 16, 18 and 19 allowable over the prior art of record.

The Bartels patent discloses an optical component, in which a switchable optical element has a first and second state, and includes a fluid and a fluid system switch for moving the fluid from substantially covering the Fresnel lens structure in a side wall 22 (substantially negating the Fresnel lens) to substantially not covering the Fresnel lens. The fluid system switch of Bartels includes a piezoelectric actuator 24 which physically moves the liquid F.

The Examiner indicates that Bartels teaches the fluid system of the subject invention, "including a first fluid (Figures 2a and 2b, element F) and a different, second fluid (Figures 2a and 2b, element 20 (empty))..."

Applicants submit that the Examiner is mistaken. Bartels does not deal with two different fluids, but rather the presence

and absence of a single fluid. In the subject invention, two separate and different fluids are being used.

The Examiner further states that while "Bartels fails to teach such an optical element having the fluid system switch comprising a configuration of electrodes arranged to act on the fluid system as claimed in the instant invention...Bartels does provide a functional equivalent (i.e., a piezoelectric actuator, (Figures 2a and 2b, element 24) for effecting a change in state for the optical element..."

Referring to the MPEP §2144.06, it is stated "In order to rely on equivalence as a rationale supporting an obviousness rejection, the equivalency must be recognized in the prior art, and cannot be based on applicant's disclosure or the mere fact that the components at issue are functional or mechanical equivalents. *In re Ruff*, 256 F.2d 590, 118 USPQ 340 (CCPA 1958)".

Applicants submit that while the piezoelectric actuator of Bartels does act as the fluid system switch in Bartels, this does not render the subject invention obvious. In particular, there are two different fluids in the system as claimed in claim 1, while Bartels only discloses a single fluid. Further, there are many advantages of the fluid system switch as claimed in claim 1, the least of which is there are no moving parts. Applicants submit that there is nothing in Bartels that would suggest a fluid system switch comprising "a configuration of electrodes for acting on the fluid system by the application of electrowetting forces" and "a voltage control system for controlling voltages applied to the

configuration of electrodes to switch between the first and second discrete states of the switchable optical element" as specifically claimed in claim 1.

The Ebstein patent discloses a method and apparatus for adjusting the focal length of a optical system, in which a solid lens element 1 is in contact with a fluid lens element 2 across a boundary (optical interface) 3. In one embodiment, the fluid lens element 2 contains an electro-optic material, and a transparent electrode is deposited across the optical interface.

The Examiner now states "it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the fluid optical system of Bartels with the well-known technique of using transparent electrodes as taught by Ebstein, to for the purpose of providing a uniform response as claimed in dependent claim 4."

Applicants believe that the Examiner is mistaken. In particular, the transparent electrode in Ebstein is being used to change the optical properties of the electro-optic material. While it would be possible to include an electro-optic material as the fluid in Bartels and to also include the transparent electrode as disclosed in Ebstein, this does not approach the subject invention. Rather, the first electrode, as claimed in claim 4, is part of the configuration of electrodes as claimed in claim 1, which is used to effect the first and second discrete states using electrowetting forces when the voltage control system applies the appropriate voltages to the configuration of electrodes.

Further, Applicants submit that Ebstein does not supply that which is missing from Bartels, i.e., a fluid system switch comprising "a configuration of electrodes for acting on the fluid system by the application of electrowetting forces" and "a voltage control system for controlling voltages applied to the configuration of electrodes to switch between the first and second discrete states of the switchable optical element" as specifically claimed in claim 1.

Claim 13 includes the limitation "the wavefront modifier comprises a birefringent material". The Examiner now states "Ebstein is relied upon for the well-know teaching of the use of birefringent materials in a fluid optical system (column 7, lines 44-66).

Applicants submit that Ebstein discloses that the electro-optic material forming the fluid 2 is birefringent. In the subject invention, as claimed, the wavefront modifier, not the first/second fluid, is a birefringent material.

The De Ment patent discloses optical modulation by fluidic optics utilizing chromatic aberration, which, as noted by the Examiner, discloses a wavefront modifier having a diffraction grating.

However, Applicants submit that De Ment does not supply that which is missing from Bartels, i.e., a fluid system switch comprising "a configuration of electrodes for acting on the fluid system by the application of electrowetting forces" and "a voltage control system for controlling voltages applied to the

configuration of electrodes to switch between the first and second discrete states of the switchable optical element" as specifically claimed in claim 1.

In view of the above, Applicants believe that the subject invention, as claimed, is not rendered obvious by the prior art, either individually or collectively, and as such, is patentable thereover.

Applicants believe that this application, containing claims 1-19, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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